31 October, 2013

Charge to the Panel

The Panel is charged with reviewing and assessing the provided written materials and presentations in order to identify the best available science to inform the State Water Board's decisions on Bay-Delta Plan requirements related to Delta outflow and related factors (Delta outflow requirements). The Panel will evaluate and synthesize the best available scientific information and prepare a report that addresses the following questions:

1. Please comment on the relative strength of the science presented and reviewed. Did you expect to hear presentation or review material on subjects that were not covered? What, if any, are the key studies and synthesis reports that the State Water Board should rely on in making their decisions on the role of flow when establishing water quality objectives for the Bay-Delta?

2. The existing Delta outflow objectives are based largely on fish (plus one species of shrimp) abundance indices and multi-month average flow relationships.
   - Does the scientific literature identify the mechanisms that caused the relationships?
   - What factors other than Delta outflow could be responsible for these correlations? For example, increased catchability as turbidity rises, local runoff, increased dilution of point source pollution, shifts in species range into and out of the survey area, and organic loading linked to overland flow.
   - Should these fish-flow relationships still be used as the basis for outflow objectives?
   - Are the fish-flow relationships sufficient to use as a measure of a healthy ecosystem?
   - Are there better tools available for assessing the health of the estuarine ecosystem? If so, what are they and could they be applied using existing data?
   - With respect to any recommended tools for assessing the health of the estuarine ecosystem, what changes to the monitoring and measurement program would be needed?

3. What scales (magnitude and duration) of outflow change are needed to produce measurable changes in specific ecosystem responses? Could adaptive management experiments be conducted on these scales to inform State Water Board decisions on Delta outflow requirements?

4. How should Delta outflow be measured and managed to better reflect the flows necessary to protect estuarine fish (or other recommended measures of ecosystem health)?
   - To what extent does managing outflow by X2 reflect flows necessary to provide reasonable protection for estuarine fish? Are there better measures of Delta outflow that could improve our ability to assess protection of estuarine fish (or other measures of ecosystem health)?

5. How do factors other than flow affect estuarine fish and other ecosystem attributes likely to interact with flow?
   - Are there tools or methods available that could help the State Water Board to assess the relative importance of flow and other factors that affect the estuarine fish species of

concern or desired ecosystem attributes?

- How can other factors affecting estuarine fish species of concern or desired ecosystem attributes be managed or improved? Are there tools or approaches other than flow to address these other factors?
- Can we reasonably expect that addressing other stressors without further regulation of flow will lead to measurable improvements in the health of the ecosystem?
- Conversely, can we reasonably expect that further addressing flow without addressing other stressors will lead to measurable improvements in the health of the ecosystem?